LSASD Project ID: 23-0016

Sampling and Analysis Plan
Bluestone Coke, LLC
Location: 3500 35th Avenue North
Birmingham, Alabama 35207

Project Date(s): November 28-December 2, 2022

Final SAP Approval Date: November 17, 2022

Project Leader: Art Masters
Hazardous Waste Section
Field Services Branch
Laboratory Services & Applied Science Division
USEPA – Region 4
980 College Station Road
Athens, Georgia 30605-2720

The ANSI National Accreditation Board attests that U.S. EPA Region 4 Laboratory Services and Applied Science Division fulfills the requirements of ISO/IEC 17025:2017 ANAB Forensic Testing & Calibration AR 3125:2019 in the field of Forensic Testing. The activities contained in this report fall within the scope of accreditation, Certificate Number: AT-2628. Expires 08 June 2024.

Project Requestor:

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ARTHUR MASTERS Digitally signed by ARTHUR MASTERS Date: 2022.11.17 10:12:17 -05'00'

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Approving Official:

LIZA MONTALVO Digitally signed by LIZA MONTALVO Date: 2022.11.17 12:52:38 -05'00'

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Liza Montalvo, Supervisor
Hazardous Waste Section
Field Services Branch

Date

This Sampling and Analysis Plan (SAP) is designed to be used in conjunction with the *Applied Science Branch Quality Assurance Project Plan* December 2019.

SECTION A: Project Planning Elements

A1. Distribution List

Recipient	Organization	Address/Email
James H. Smith	RCRA Corrective Action Section RCRA Programs and Cleanup Branch Land, Chemicals and Redevelopment Division US Environmental Protection Agency - Region 4	James H. Smith Corrective Action Specialist RCRA Corrective Action Section RCRA Programs and Cleanup Branch Land, Chemicals and Redevelopment Division US Environmental Protection Agency - Region 4 Sam Nunn Atlanta Federal Center 61 Forsyth Street SW Atlanta, GA 30303 Smith.JamesH@epa.gov

A2. Project Personnel

Team Members[1]	Organization	Responsibilities
Art Masters	LSASD/FSB/HWS	Project Leader, Sampling
Paula Whiting	LSASD/FSB/HWS	Site Safety Officer, Sampling
Daniel McCay	LSASD/FSB/HWS	Sampling
Morris Flexner	LSASD/FSB/WQS	Sampling
Dina Constantinides	Serco, Inc	Contractor, Sampling Support
Pete Kalla	LSASD/FSB/WQS	Sampling
Jim Smith	LCRD	Project Requestor
Kevin Greaney	LCRD	Technical Assistance

[1]Project Leader and all Task Leaders assisting with this project have been deemed competent by LSASD management to conduct the tasks required to fulfill the prescribed goals.

A3. Site Description and Background Information

In the late 1980's, a RCRA Facility Assessment (RFA) was conducted at the Sloss Industries Coke plant, now known as Bluestone Coke, LLC. During that RFA, 39 Solid Waste Management Units (SWMUs) were identified. Corrective Action measures are currently being implemented on some SWMUs at the facility.

A4. Problem Definition

During EPA's Human Health Risk Assessors review of the SWMU management area (SMA) 3 Coke Manufacturing Plant Corrective Measures Study dated October 21, 2021, a data gap was identified that is essential to completing human health risk evaluation. During the RFI process surficial soil samples, 0-1 foot, were not taken and in order to fill these data gaps, the Land, Chemicals and Redevelopment Division (LCRD) has requested that the Laboratory Services & Applied Science Division (LSASD) take 25 soil samples across SMA 3 and at the following locations associated with Quench Towers A: SWMU 1A (Quench Towers & Sumps), SWMU 2A (Quench Tower Pump Basin), SWMU 3A (Old Quench Tower Settling Basin); Quench Towers B: SWMU 1B (Quench Towers & Sumps), SWMU 2B (Quench Tower Pump Basin); SWMU 5 (Coal Tar Storage Drainage System); SWMU 6 (Diesel Tank Spill Area); SWMU 7 (Coal Tar Collection Sump in #1 Pump House); SWMU 8 (Flushing Liquor Decanter); SWMU 9 (Flushing Liquor Decanter Sump); SWMU 10 (Coal Tar Decanter for #3 & #4 Coke Batteries); SWMU 11 (Coal Tar Decanter for Coke Battery #5); and SWMU 12 (Coal Tar Decanter for #1 and #2 Coke Batteries); SWMU 37 (BTF Sewers Sump) (Figure 3). LCRD requested these samples to expedite human health risk evaluation and corrective action.

A5. Project Description, Goals, and Study Boundaries

Surficial soil samples (0"-12") will be collected as grab samples from the 25 locations identified by LCRD. These locations are listed in Table 1. Due to the presence of significant amounts of gravel at many of the locations, samples collected may be sieved to remove the large gravel particles and render enough fine soil material for analysis. LSASD will attempt to obtain the sample for volatile organic analysis (VOCs) prior to sieving. Samples will be analyzed at LSASD for VOCs, semi volatile organic compounds (SVOC), polycyclic aromatic compounds (PAH), and metals. LSASD will attempt to obtain sufficient sample material to provide split samples for the facility or their representative. The facility will need to provide their own sample containers.

A6. Applicable Regulatory Information

Data from the sampling will be compared to the Regional Screening Levels (RSLs) for industrial soil.

A7. Decision(s) to be made based on data

The facility will submit a plan for corrective measures, if needed, and this data will assist LCRD in evaluating any subsequent proposals. LCRD, in conjunction with Region 4 risk assessors, will determine what action to take based upon the results.

SECTION B: Data Generation, Acquisition, and Reporting

Will samples or physical evidence be collected:	☒ **Yes –** *If yes, complete all subsections in Section B.*
	☐ **No** – *If no, no action needed for B1, B2, B3 or B4, proceed to B5.*

B1. Sampling Design/Information Inputs

Sample Media	Total Number of Samples	Analyses
Soil	25	VOCs EPA Method 5035, 8260C SVOCs EPA Method 8270D PAH Method 8270D Metals EPA Methods 200.1, 6010

B2. Sampling Handling and Custody

As outlined in the *Applied Science Branch Quality Assurance Project Plan,* all samples will be handled and custody maintained in accordance with the LSASD Laboratory Services Branch Laboratory Operations and Quality Assurance Manual, LSASD Operating Procedure for Sample and Evidence Management, SESDPROC-005, and SESD Operating Procedure for Packing, Labeling and Shipping of Environmental and Waste Samples, SESDPROC-209.

Will a Chain-of-Custody be produced?	☒ **Yes**
	☐ **No**

During the duration of the event, have preparations been made to ensure that custody is maintained? *Custody of a sample or physical evidence is defined as:* • *It is in the actual possession of an investigator* • *It is in the view of an investigator, after being in their physical possession* • *It was in the physical possession of an investigator and then they secured it to prevent tampering* • *It is placed in a designated secure area*	☒ **Yes** ☐ **No**

B3. Quality Control

Field quality control measures will be in accordance with the LSASD Operating Procedure for Field Sampling Quality Control, SESDPROC-011.

Field quality control samples include the following: At least one sample will be designated as a matrix spike/matrix duplicate (MS/MSD).

Laboratory quality control measures are specified in the *LSASD Laboratory Services Branch Laboratory Operations and Quality Assurance Manual*.

B4. Analytical Methods and Support

Samples will be analyzed by the EPA/Region 4 LSASD laboratory in Athens, GA in accordance with the LSASD Laboratory Services Branch Laboratory Operations and Quality Assurance Manual. Specific analytical methods include:
VOCs EPA Method 5035, 8260C
SVOCs EPA Method 8270D
PAH Method 8270D
Metals EPA Methods 200.1, 6010

Laboratory Turn-Around-Time Requested: 35 Days

Reporting Levels:	☒ Non-Routine Reporting Levels **ARE NOT** Required, No Further Action. ☐ Non-Routine Reporting Levels **ARE** Required, List Below.
Non-Routine Reporting Levels:	
Waste Samples Anticipated:	☐ **Yes** ☒ **No**

	☐ **Unknown**
If answer is yes, specify laboratory to receive samples: (i.e., LSASD, commercial lab vis bank card or PR, subcontracted via START/RACS/REPA 5)	

B5. Sampling and Measurement Procedures

Sampling and measurement activities will be in accordance to the LSASD operating procedures. The following field procedures will be followed during this study, check all that apply: *(Last Update: 8/12/2021)*

	Field Measurement Procedures*	**LSASD/SESDPROC-**	**Revision**
☐	Field pH Measurement	100	R5
☐	Field Specific Conductance Measurement	101	R7
☐	Field Temperature Measurement	102	R5
☐	Field Turbidity Measurement	103	R4
☐	Groundwater Level and Well Depth Measurement	105	R4
☐	Field Measurement of Dissolved Oxygen	106	R4
☐	Field X-Ray Fluorescence (XRF) Measurement	107	R4
☐	Wastewater Flow Measurement	109	R5
☒	Global Positioning System	110	R5
☐	In-Situ Water Quality Monitoring	111	R4
☐	Field Measurement of Total Residual Chlorine	112	R6
☐	Field Measurement of Oxidation-Reduction Potential (ORP)	113	R2
	Field Sampling Procedures*	**LSASD/SESDPROC-**	**Revision**
☐	Sediment Sampling	200	R4
☐	Surface Water Sampling	201	R4
☒	Soil Sampling	300	R4
☐	Groundwater Sampling	301	R4
☒	Waste Sampling	302	R4
☐	Ambient Air Sampling	303	R5
☐	Potable Water Supply Sampling	305	R4
☐	Wastewater Sampling	306	R5
☐	Soil Gas Sampling	307	R4

***If procedures allow for different sampling and measurement methods, the utilized method(s) must be identified in the project description section. Additionally, verify procedure revision numbers before issuance of SAP.**

Section C: Reporting

C1. Reporting

Estimated Report Completion Date:	February 3, 2023
Is a Provisional Data Release Anticipated?	☐ **Yes**
	☒ **No**

Provisional data refers to final analytical and field measurement results that may be subject to further interpretation and/or data assessment by the project leader prior to the issuance of a final field investigation report. Provisional data may be provided prior to the completion of the LSASD final report only if LSASD management approves the release of the information and the analytical data have been released as final from the LSASD Laboratory Services Branch, for LSASD generated data, and/or the LSASD Quality Assurance Section, for non-LSASD generated data. Release of provisional data will be transmitted by electronic or hard copy with official correspondence from the Section Chief in accordance with the LSASD Operating Procedure for Report Preparation and Distribution (SESDPROC-003).

Additional Comments: A memorandum detailing sampling activities and observations will be prepared and transmitted to Pesticide Enforcement in lieu of a report.

Site Figures and Tables

Table 1

Proposed Sample IDs

Station ID	Sample ID
QTA	QTA-SS-04
SMU01A	SMU01A-SS-01
SMU02A	SMU02A-SS-02
SMU03A	SMU03A-SS-03
QT2B	QT2B-SS-01
SMU01B	SMU01B-SS-03
SMU02B	SMU02B-SS-02
SMU05A	SMU05A-SS-01
SMU05B	SMU05B-SS-02
SMU06	SMU06-SS-01
SMU78	SMU78-SS-01
SMU09	SMU09-SS-01
SMU10A	SMU10A-SS-01
SMU10B	SMU10B-SS-02
SMU11A	SMU11A-SS-01
SMU11B	SMU11B-SS-02
SMU12	SMU12-SS-01
SMU37	SMU37-SS-01
SMA3A	SMA3A-SS-01
SMA3B	SMA3B-SS-02
SMA3C	SMA3C-SS-03
SMA3D	SMA3D-SS-04
SMA3E	SMA3E-SS-05
SMA3F	SMA3F-SS-06
SMA3G	SMA3G-SS-07

Table 2 Sample Information

Bluestone Coke SMA 3 SWMUs	Sample	Station ID	Sample ID	Latitude GPS Accuracy +-13 feet	Longitude GPS Accuracy +-13 feet	Matrix Description	*Notes*	Soil Sampling Location Figure #s
Quench Tower A	SS-04	QTA	QTA-SS-04	33.5626N	-86.8038W	Coke breeze		1
SWMU 1A	SS-01	SMU01A	SMU01A-SS-01	33.5629N	-86.8040W	Soil and gravel	*outside railroad tracks*	1
SWMU 2A	SS-02	SMU02A	SMU02A-SS-02	33.5627N	-86.8037W	Dirt and gravel		1
SWMU 3A	SS-03	SMU03A	SMU03A-SS-03	33.5630N	-86.8037W	Gravel soil coke breeze		1
Quench Tower 2B	SS-01	QT2B	QT2B-SS-01	33.56715N	-86.80021W	Gravel and coke breeze	*15 feet from Middle of Quench Tower B*	2
SWMU 1B	SS-03	SMU01B	SMU01B-SS-03	33.5665N	-86.8001W	Black soil coke breeze	*15 feet from pipe*	2
SWMU 2B	SS-02	SMU02B	SMU02B-SS-02	33.56715N	-86.80021W	Coke breeze/coal fines/soil	*GPS taken 25 feet from actual sample location below along railroad cut.*	2
SWMU 5	SS-01	SMU05A	SMU05A-SS-01	33.5630N	-86.8028W	Grass/soil	*Between concrete tank foundations*	3
SWMU 5	SS-02	SMU05B	SMU05B-SS-02	33.56323N	-86.80261W	Grass/soil	*East of second tank ring foundation*	3
SWMU 6	SS-01	SMU06	SMU06-SS-01	33.56546N	-86.80266W	Coke breeze, gravel, fine dust		4
SWMU 7/8	SS-01	SMU78	SMU78-SS-01	33.5637N	-86.8021W	Grass and soil	*Corner of building and secondary containment*	3,5
SWMU 9	SS-01	SMU09	SMU09-SS-01	33.55410N	-86.80190W	gravel		5
SWMU 10	SS-01	SMU10A	SMU10A-SS-01	33.56522N	-86.801103W	Gravel and dirt	*2 pipes but below 1 foot in depth*	6
SWMU 10	SS-02	SMU10B	SMU10B-SS-02	33.56539N	-86.80089	Gravel and dirt	*Corner of concrete curb*	6
SWMU 11	SS-01	SMU11A	SMU11A-SS-01	33.56553N	-86.80061W	Soil and gravel		6
SWMU 11	SS-02	SMU11B	SMU11B-SS-02	33.56557N	-86.80070W	Gravel and dirt	*Pipes are well below one foot in depth*	6
SWMU 12	SS-01	SMU12	SMU12-SS-01	33.56414N	-86.80189W	Gravel and grass	*Two samples for 9 and 12 are close*	5
SWMU 37	SS-01	SMU37	SMU37-SS-01	33.56778N	-86.79948	Soil	*Sample should be taken 10 feet closer to sump. Location is 27 feet from sump.*	8
SMA 3	SS-01	SMA3A	SMA3A-SS-01	33.56584N	-86.80058W	Gravel coke breeze	*Between concrete ties*	7
SMA 3	SS-02	SMA3B	SMA3B-SS-02	33.56469N	-86.80163W			7
SMA 3	SS-03	SMA3C	SMA3C-SS-03	33.56555N	-86.80008W	Grass/soil		6
SMA 3	SS-04	SMA3D	SMA3D-SS-04	33.5636N	-86.8026W	Gravel and dirt		3
SMA 3	SS-05	SMA3E	SMA3E-SS-05	33.5631N	-86.8033W	Gravel soil grass		3
SMA 3	SS-06	SMA3F	SMA3F-SS-06	33.56707N	-86.80013W	Soil	*Next to tank*	2
SMA 3	SS-07	SMA3G	SMA3G-SS-07	33.56495N	-86.80124W	Soil gravel dust coke breeze	*125 feet south of SWMU 10 SS-01*	6

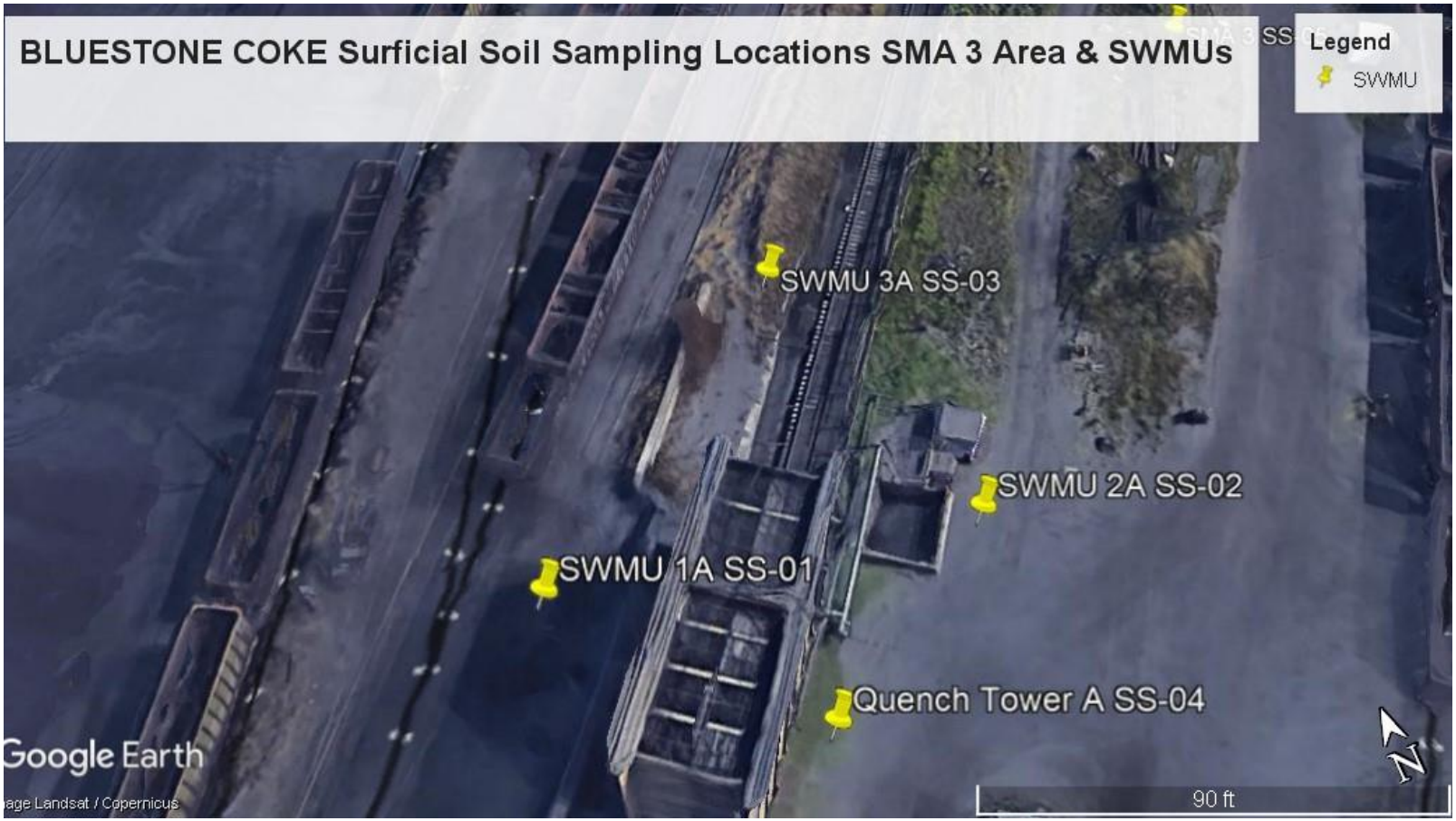
BLUESTONE COKE Surficial Soil Sampling Locations SMA 3 Area & SWMUs
Legend
SWMU
SWMU 3A SS-03
SWMU 2A SS-02
SWMU 1A SS-01
Quench Tower A SS-04
Google Earth
90 ft
N

Figure 2


BLUESTONE COKE SMA 3
Legend
ERP COKE
SWMU
SMA 3 SS-06
Quench Tower B SS-01
SWMU 2B SS-02
SWMU 1B SS-03
Google Earth
age Landsat / Copernicus
300 ft
N

Figure 3


BLUESTONE COKE Surficial Soil Sampling Locations SMA 3 & SWMUs
Write a description for your map.
Legend
SWMU
SWMU 7/8 SS-01
SMA 3 SS-04
SWMU 5 SS-02
SMA 3 SS-05
SWMU 5 SS-01
SWMU 3A SS-03
SWMU 1A SS-01
SWMU 2A SS-02
Quench Tower A SS-04
Google Earth
300 ft
N

Figure 4

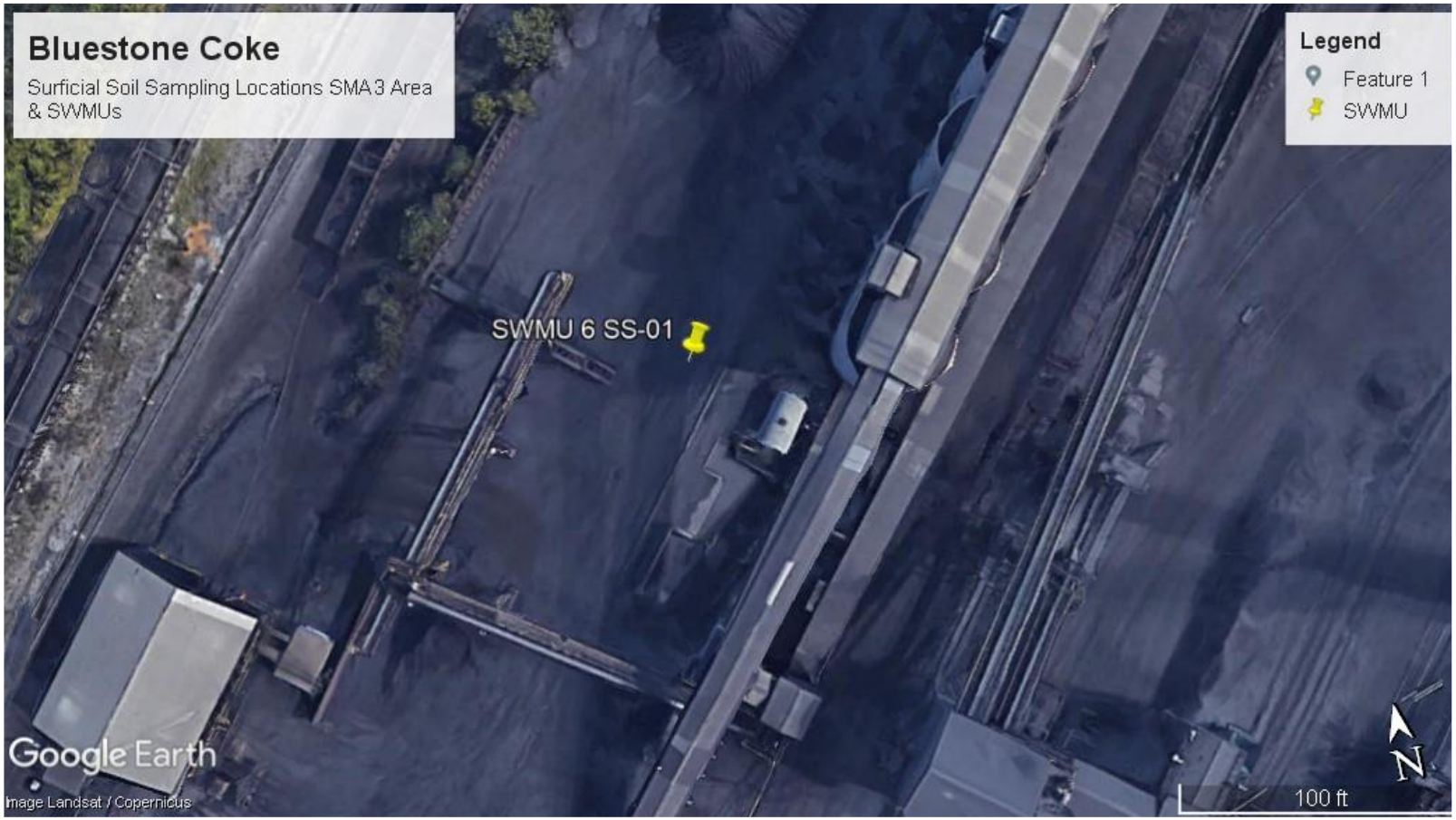
Bluestone Coke
Surficial Soil Sampling Locations SMA3 Area & SWMUs
Legend
Feature 1
SWMU
SWMU 6 SS-01
Google Earth
Image Landsat / Copernicus
N
100 ft

Figure 5


BLUESTONE COKE Surficial Soil Sampling SMA 3 & SWMUs
Write a description for your map.
Legend
SS-01
SWMU 12 SS-01
SWMU 9 SS-01
SWMU 7/8 SS-01
Google Earth
age Landsat / Copernicus
100 ft
N

Figure 6

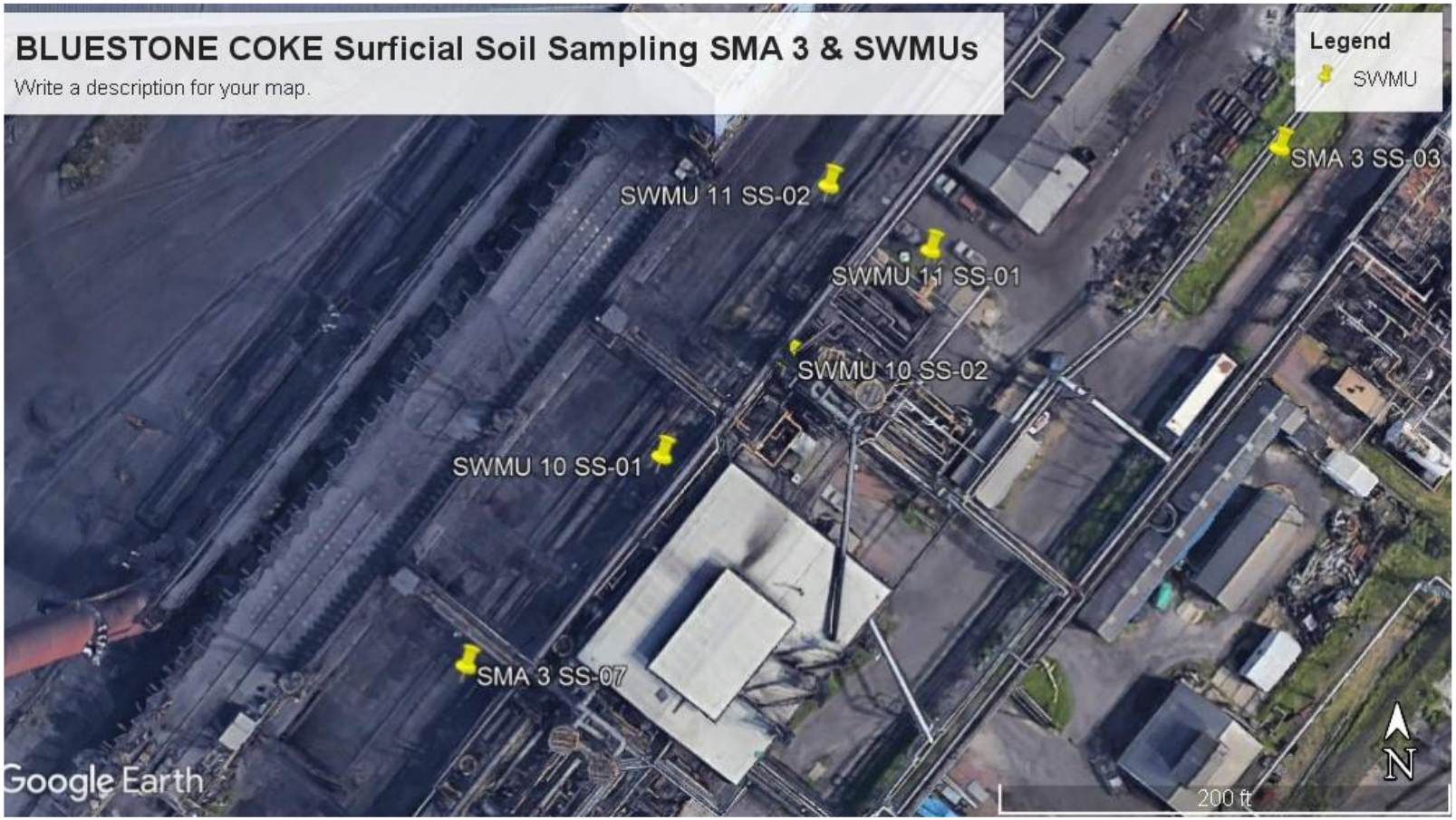
BLUESTONE COKE Surficial Soil Sampling SMA 3 & SWMUs
Write a description for your map.
Legend
SWMU
SMA 3 SS-03
SWMU 11 SS-02
SWMU 11 SS-01
SWMU 10 SS-02
SWMU 10 SS-01
SMA 3 SS-07
Google Earth
200 ft
N

Figure 7


BLUESTONE COKE SMA 3
Legend
ERP COKE
SWMU
SMA 3 SS-01
SMA 3 SS-03
SWMU 11 SS-02
SWMU 11 SS-01
SWMU 10 SS-02
SWMU 10 SS-01
SMA 3 SS-07
SMA 3 SS-02
Google Earth
Image Landsat / Copernicus
300 ft
N

Figure 8


Bluestone Coke
Surficial Soil Sampling Locations SMA3 Area
Legend
SWMU
SWMU 37 SS-01
Google Earth
age Landsat / Copernicus
100 ft
N